



Our File No. 09793822-0111

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of:

T. Hatazawa et al

Serial No. 09/446,641

Filing Date: December 22, 1999

Title: SOLID-ELECTROLYTE  
SECONDARY BATTERY

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)  
) Examiner: T. Dove

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) Group Art Unit No.: 1745  
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**DECLARATION UNDER 37 C.F.R. § 1.132**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir,

I, Tsuyonobu Hatazawa ("I" or "Affiant") hereby declares as follows:

1. I am one of the inventors of the subject matter of the above identified application.
2. I am currently an employee of Sony Corporation, which is also the sole assignee of the above-referenced patent application.
3. I have worked for Sony Corporation for over 8 years.
4. I have worked in the field of solid-electrolyte batteries for over 6 years.
5. I have a degree in Chemistry from Sophia University  
\_\_\_\_\_.
6. I have read the above identified application, including the presently active claims. I have also reviewed the office action mailed on August 20, 2003 and the references cited in

the office action, including Gao et al. (U.S. Patent 5,756,230) and Andrieu et al. (U.S. Patent No. 5,811,205).

7. In a series of experiments in the above-identified application, a number of solid-electrolyte batteries were prepared comprising solid electrolytes having fluorocarbon polymers with a weight-average molecular weight ranging from 300,000 to 2,000,000. (See Experimental embodiments 1-6 and Comparative Examples 1-3 and Table 1, at pages 16-21 in the attached copy of the Specification). As apparent from Table 1, each of the experimental embodiments using the fluorocarbons of 550,000 or more in weight-average molecular weight (Mw) as a gel electrolyte was proved to have excellent characteristics for peel strength and a maintain a high percentage for a discharge output maintenance factor after a cycle test.

8. This data provided in the specification of the above-identified application demonstrates substantially improved results, and these results are unexpected in light of the prior art (specifically Gao et al. and Andrieu et al.). Furthermore, these results are commercially significant, since using a fluorocarbon polymer of 550,000 or more in weight-average molecular weight assures excellent adhesion of an electrolyte to an active material of a positive and negative electrode making it possible to adhere a high molecular solid or gel electrolyte to an active material of an electrode with sufficient strength and thus reduce the internal resistance of the electrodes. Ultimately this permits one to produce a battery with an improved charge and discharge cycle life. Finally, these results are commensurate in scope with the claims, since the data provided would lead one of skill in the art to conclude that the results obtained from the specific example would be expected for all solid-electrolyte batteries having fluorocarbon polymers with a weight-average molecular weight which falls within the scope of the present claims.

9. I hereby declare that all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States

Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Tangoroku Hatazawa February 4, 2004  
Name Date